

REMARKS

The Office Action dated June 19, 2007 has been received and carefully noted. The following remarks are submitted as a full and complete response thereto.

Claims 1-31 are respectfully submitted for consideration.

The Office Action rejected claims 1, 7-13, 16-24, 26-28 and 30-31 under 35 U.S.C. 103(a) as being obvious over US Patent No. 5,590,133 to Billström et al. (Billström), in view of US Patent No. 6,374,112 to Widegren et al. (Widegren). The Office Action took the position that Billstrom disclosed all of the features of these claims except allocating radio resources in a UMTS system. The Office Action asserted that Widegren disclosed this feature. Applicants respectfully submit that the cited references, taken individually or in combination, fail to disclose or suggest all of the features recited in any of the pending claims.

Claim 1, from which claims 2-18 depend, is directed to a method for performing multicast transmission in a cellular network. A multicast service notification is transmitted to a certain multicast group, the notification is to inform of an upcoming multicast session. The multicast service notification is received in mobile stations belonging to the multicast group. In response to the receiving the multicast service notification, a moment for a response to the multicast service notification in the mobile stations is selected. A presence report is sent from at least one of the mobile stations at the response moment of the at least one mobile station. The presence report(s) are received in a radio access network. Radio resources are set up for multicast transmission

in a cell of the cellular network, when the presence report(s) received in the cell meet(s) predetermined criteria. The multicast data is transmitted using the radio resources set up for the multicast transmission. The cellular network includes mobile stations (MS).

Claim 19, from which claims 20-26 depend, is directed to a system for performing multicast transmission in a cellular network. A radio access network is configured to transmit a multicast service notification to mobile stations belonging to a multicast group. In the mobile stations, a selection unit is configured to select a moment for a response to said multicast service notification and for sending a presence report to the radio access network when the response moment arrives, whereby the radio access network is further configured to receive the presence reports. An establishing unit is configured to establish radio resources for the multicast transmission in individual cells of the cellular network, the establishing unit being configured to establish the radio resources for a cell when the presence report(s) received in the cell meet(s) predetermined criteria.

Claim 27, from which claims 28 and 29 depend, is directed to a mobile station for a cellular network. A reception unit is configured to receive a multicast service notification informing of an upcoming multicast session. A response unit is configured to select a moment for a response to the multicast service notification and for sending a presence report at the response moment, the presence report indicating the willingness of the mobile station to receive the multicast service. The reception unit is configured to receive a notification informing of a presence report sent by another mobile station.

Claim 30 is directed to system for performing multicast transmission in a cellular network. A radio access network is adapted to transmit a multicast service notification to mobile stations belonging to a multicast group. In the mobile stations, a first means selects a moment for a response to the multicast service notification and sends a presence report to the radio access network when the response moment arrives, whereby the radio access network is adapted to receive the presence reports. A second means establishes radio resources for the multicast transmission in individual cells of the cellular network, the second means being adapted to establish the radio resources for a cell when the presence report(s) received in the cell meet(s) predetermined criteria.

Claim 31 is directed to a mobile station for a cellular network. A reception means receives a multicast service notification informing of an upcoming multicast session. A response means selects a moment for a response to the multicast service notification and sends a presence report at the response moment, the presence report indicating the willingness of the mobile station to receive the multicast service. The reception means are adapted to receive a notification informing of a presence report sent by another mobile station.

Embodiments of the present invention are directed to the present invention are accomplished by utilizing service notifications sent to the members of the multicast group in order to inform them of an upcoming multicast session. Upon receiving the service notification, a mobile station belonging to the multicast group determines a moment for sending a response to the notification. The response moments of the members can be

spread over a certain period so that only one or a few of the members give an immediate response to the network. Thus, the timing for a response to a received multicast service notification is used to reduce signaling in the start-up phase of the multicast service. Radio resources are then established in a cell when the responses received meet desired criteria, and the service is delivered through the resources established. The responses are also “presence reports”, since a response indicates that the corresponding member of the multicast group is present in the cell. Applicants respectfully submit that each of the pending claims recites features that are neither disclosed nor suggested in any of the cited references.

Billström describes a system for providing packet data services in TDMA cellular systems. One or more shared packet data channels are provided, depending on demand. The packet data services are available to a mobile station after a procedure that brings the mobile station from an initial GSM idle state to a Packet Data (PD) state, (see FIG. 4 of Billström). The procedure may be initiated either by the mobile station making a request for the packet data service, or by the Mobile services Switching Center (MSC) that is currently serving the mobile station, when the MSC receives a packet addressed to the mobile station. FIG. 5 of Billström illustrates mobile-initiated establishment of the PD state.

Applicants respectfully submit that the cited references fail to disclose or suggest at least the feature of “radio resources are set up for multicast transmission in a cell of the cellular network, when the presence report(s) received in the cell meet(s) predetermined

criteria” as recited in claim 1 and similarly recited in claims 19, 27, 30 and 31. The Office Action relied on Billström to disclose this feature.

However, Applicants respectfully submit that Billström is silent with regards to this feature and does not in any way, suggest such a service start in order to be able to reserve radio resources in an optimal way. Instead, Billström merely describes that the PD mode is established using the regular GSM signaling with a new type of service request (signal 3 in FIG. 5) that requests the establishment of the PD mode for the mobile station concerned. In the Billström system, the same procedure is used for each mobile station separately to establish the PD state. Thus, Billström does not disclose or suggest resource allocation as recited in the present pending claims.

As discussed above, the presently claimed invention, seeks to start a multicast service in a cellular network so that the resources allocated for the service correspond to the real need in the network and so that excessive signaling on the uplink channels can be avoided in the start-up phase of the service. Billström does not suggest anything like this, but only generally sets forth that the shared packet channels may be employed for providing multicast services.

Further, the Office Action asserted that the difference between Billström and the present invention is that Billström “does not explicitly teach allocating radio resources in a UMTS system”. However, Applicants respectfully submit that at best, the most relevant feature of Billström with respect to the present invention is that the Billström system is

intended for providing multicast services in a cellular network. Applicants further submit that Widegren fails to cure these deficiencies.

As discussed in previous correspondence, Widegren describes a system for allocating radio resources in a UMTS system. The objective in the Widegren system is to allocate resources when a service node requires communication with a mobile station. This is accomplished in a manner that a service node requests a radio access bearer from the (UT)RAN rather than a specific radio channel resource. A radio access bearer is a logical connection through the (UT)RAN and over the radio air interface and one or more parameters, accompany a radio access bearer request sent from the service node. The (UT)RAN establishes the radio access bearer, i.e. the logical connection, and maps it to physical transport and radio channel resources based on the parameter(s). The mapping involves the selection of the type of channel to be used. For example, when the quality of service requested in the radio access bearer request is high, a dedicated channel may be chosen, whereas a common channel may be selected when the quality of service requested is lower.

Widegren relates to the problem of how to efficiently allocate resources for a connection between a core network node and a mobile station. In Widegren, the radio resources are set up in the RAN based on the parameters associated with the radio access bearer request received from a core network node. Thus, the RAN does not communicate with a mobile station when setting up the resources. Consequently, Widegren does not suggest using presence reports whose transmissions may be spread over a wider time

window by using mobile-specific response moments for the reports, as recited in the presently claimed invention.

Applicants submit that Widegren is silent with regards to efficiently initiate a multicast service for a group of mobile users belonging to the same multicast group. Therefore, Widegren fails to cure the deficiencies of Billström.

Applicants submit that the cited references fail to disclose or suggest the feature of a “presence report”. The Office Action relied on Widegren to disclose this feature. The Office Action on page 6 of the OA, states that a cell update message “reads on the claimed presence report”. However, Applicants respectfully traverse this assertion because the recited “presence report” does not in any way correspond to the cell update message, as alleged in the Office Action. Further, there is no support in Widegren to suggest any such analogy.

Still further, Applicants respectfully submit that one skilled in the art would not be motivated to modify Billström with Widegren, because the two references are not analogous, and neither of the references suggests any such motivation. Specifically, Billström describes that multicast services may provided through shared packet channels of a TDMA system, and Widegren describes how a (UT)RAN establishes a radio access bearer and maps it to physical transport and radio channel resources. Therefore, the teachings of these references are not analogous.

Applicants respectfully submit that because claims 7-13, 16-18, 20-24, 26, and 28 depend from claims 1, 19, and 27, these claims are allowable at least for the same reasons

as claims 1, 19 and 27, as well as for the additional features recited in these dependent claims.

Based at least on the above, Applicants respectfully submit that the cited references fail to disclose or suggest all of the features recited in claims 1, 7-13, 16-24, 26-28 and 30-31. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

The Office Action rejected claims 2-6, 14, 15, 25 and 29 under 35 U.S.C. 103(a) as being obvious over Billström and Widegren, in further view of US Patent Application No. 2002/0106985 to Sato et al. (Sato). The Office Action took the position that Billström and Widegren disclosed all of the features of these claims except time periods and time elapses in a MBMS. The Office Action asserted that Sato disclosed this feature. Applicants respectfully submit that the cited references, taken individually or in combination, fail to disclose or suggest all of the features of any of the above claims. Specifically, Billström and Widegren is deficient at least for the reasons discussed above regarding claims 1, 19 and 27 and Sato fails to cure these deficiencies.

As discussed in previous correspondence, Sato describes a system for providing multicast services, in which a radio terminal is provided with service continuation requesting means, which transmit a service continuation request signal to an information distribution apparatus for requesting continuation of multicast information distribution service. A host that receives the query, monitors as to whether a response from another host is received within a random time. If this is the case, the host maintains reception

condition. Sato merely describes the operation of the service providing system during the service, not the initiation of the service as recited in the presently claimed invention. Thus, Applicants submit that Sato fails to cure the significant deficiencies of Billström and Widegren discussed above.

Based at least on the above, Applicants respectfully submit that the cited references fail to disclose or suggest all of the features of claims 2-6, 14, 15, 25, and 29. Accordingly, withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

Applicants respectfully submit that each of claims 1-31 recites features that are neither disclosed nor suggested in any of the cited references. Accordingly, it is respectfully requested that each of claims 1-31 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'D.E.B.', is written over a horizontal line.

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